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Title : Surfacing, respiration and dive cycles of Bowhead whales (Balaena mysticetus) in the Beaufort Sea. Calves, Subadults and Adults

Category : Behavior

Student : M.A./M.S.

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Abstract : Data on surfacing, respiration and dive (SRD) cycles of bowhead whales are relevant in energetic analyses, in deriving correction factors for whales missed during visual surveys, and as indicators of disturbance. However, SRD data are widely variable, complicating their use in such analyses. Our objective was to assess the dependence of SRD variables on bowhead age, activity, and status. Bowheads in the Beaufort Sea were observed systematically at various times in 1980-2000 during spring, summer, and fall. Bowhead behavior was observed from an aircraft circling at an altitude of =457 m (=1500 ft), high enough to avoid significant aircraft disturbance. We documented durations of surfacings and dives, number of blows (respirations) per surfacing, and intervals between successive blows. We summarized SRD variables by whale status (calf, subadult, mother, other adult), whale activity (traveling, feeding, and socializing), and season (spring, summer, fall). Subadult whales had lower median blow intervals than adults (mothers and others); this was evident for bowheads engaged in all three whale activities studied. Subadults also had shorter dives during traveling, and marginally lower surface times during feeding, as compared with adults and mothers. Subadults engaged in traveling showed no spring fall differences in any of the SRD variables. Adult whales, in contrast showed differences in all four variables. For both mothers and calves, there was an increase in number of blows per surfacing, surface times, and dive times from spring to fall. Overall, SRD cycles differed significantly depending on whale status, and season. These differences should be considered when applying SRD data in energetic analyses, disturbance studies, or derivation of correction factors for visual surveys. [Supported by U.S. Minerals Management Service.]